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THE ST. PAUL METHOD OF ASSESSING REAL ESTATE.¹

IN the spring of 1896 the city of St. Paul made some radical changes in its methods of assessing real estate. The immediate success of the new methods renders them worthy of notice. The new system is the creation of Mr. W. A. Somers, formerly deputy assessor of the city. The essential features of the system were worked out several years ago. The writer remembers looking over some of the diagrams in the spring of 1893. A year before, the plan had been submitted to the press and received some discussion. But the public and the officials could not be interested. By 1896, however, the time was ripe. The commercial depression had affected land values greatly, but not uniformly. A decided and sudden shifting of the retail business district had left much of the property formerly valued the highest, absolutely deserted. As a result, the assessment, never free from inequalities, now exhibited the most glaring faults, and that, too, just when the hard times caused an unequal distribution of the burdens of taxation to seem doubly oppressive.

A general revaluation of real estate was imperatively demanded; yet every one informed in the matter knew that the machinery did not exist for a suitable valuation. The law contemplates the assessment of real property by an assessor, who has personally inspected it. But no one had been able to devise a system which would make the inspection of 100,000 parcels of property anything more than a form. The biennial assessment required by law had always been made by copying the old valua-

¹ The data for this paper have been gathered from the newspapers, the "Rules and Instructions for Assistant Assessors," the report of Mr. Buell, chairman of the committee of architects, the maps and other material in the assessor's office, and the writer's own experience as one of the assistant assessors in St. Paul in 1893, but more than all from interviews with Mr. Somers, who gave his time without stint for this purpose, as well as his memoranda, diagrams, and tables.

ations with changes for new buildings, newly platted lands, etc. Occasionally an increase would be made over an entire street or locality, but a decrease was seldom granted except in response to pressure brought to bear on the head assessor; then it was irregular and only increased the confusion of valuations.

Mr. Somers, with his ready-made plan for a systematic valuation, now obtained a hearing. After considerable discussion by officials, citizens, and the press, his plan was adopted, an extra appropriation was made to carry it out, and he himself appointed to direct the work. The assessment involved four distinct steps: (1) The field work to get the data regarding each parcel of land and its improvements; (2) the valuation of the buildings by a committee of architects; (3) the valuation of the middle lot of each of the four sides of each block in the city by a committee of real estate experts; (4) the computation of the values of the other lots of each block from the values of the middle lots.

1. For the field work eighty-two men were employed; the city was divided into 263 districts; each man was provided with a supply of blanks, a five-foot measuring pole, a large scale map of the district assigned to him, and the descriptions of all the parcels of land in the district as found in the office of the register of deeds. With the land itself the inspector so equipped had little to do—chiefly to notice the nature of the street improvements in front of it, and the grade of the lots with reference to the street. For recording information about buildings three kinds of blanks were provided: one for residences, one for stores with living rooms or halls overhead, and one for large stores, factories, warehouses, or office buildings. These blanks were so arranged that it was possible to record fifty facts about a building by simply checking off words or entering figures. The information was complete enough for a builder to make a contract on. Yet, notwithstanding the number of details to be observed and recorded, the work could be done rapidly; the number of buildings examined in a day by each man averaged about twenty-five. The field work was completed except for a few cases where the reports were defective, in exactly five weeks.

2. While the field work was still in progress, a small committee of architects, employed for the purpose, went to work on the material thus collected and began the valuation of the buildings. The committee soon settled on a few simple rules and tables. Small, and medium sized, buildings were valued at so much per square foot of ground covered. For plain wooden dwellings the following table was used:

	No foundation	Stone or brick foundation
One story	\$.60	\$.90
One story and a half	.80	1.10
Two stories	.90	1.20

Ten cents per square foot was deducted if there was no provision for water; the same amount if a building without a foundation was over ten years old, or if a building with a foundation had no cellar or only a small one. An addition of twenty cents was made for a furnace, twenty-five cents for a bath-room, and ten to twenty cents for hardwood finish. For large modern houses another table was provided, and still another for barns. These tables were found to work with tolerable accuracy up to \$7000. For buildings above that figure personal inspection by the architects was necessary, or else information as to the original cost.

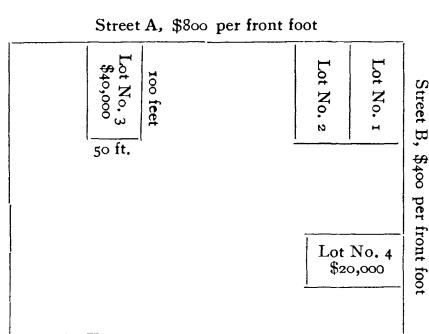
3. At the request of the assessor the Chamber of Commerce appointed a committee of nine citizens to co-operate with him in valuing the land. This committee of nine called to its aid twelve other citizens, making a committee of twenty-one of the leading business men and real estate dealers of the city. These gentlemen, serving gratuitously, decided on the commercial value of the middle lot of each side of each block in the city. For the preliminary work the committee divided itself into subcommittees; each subcommittee considered a small section of the city, writing the figures arrived at on a large scale map of its section. When the work of the subcommittee was done, the maps were all mounted together on one side of a room in the courthouse, making a huge map of the city with the prelimi-

nary estimate written about every block. Then the committee of twenty-one met and considered the map as a whole, in order to bring the various estimates into harmony with each other and to give the completed work the authority of the entire committee.

4. The most original and curious feature of the St. Paul assessment is the method of deriving from the values of the middle lots of each block the values of all the other lots. For this purpose Mr. Somers invented a series of rather complicated charts or diagrams, covering all degrees and combinations of values for the middle lots up to \$1000 per front foot.

Diagram No. 1 is to show the value of a corner lot fronting 50 feet on the better street and 100 feet on the other street. Diagram No. 2 is to show the value of the second lot from the corner, with only the frontage of 50 feet on the better street.

Each of the ten diagonal lines is for a value per front foot on the better street—\$100, \$200, etc., up to \$1000; notice the figures along the vertical line. The ten lines radiating from the zero point are for the frontage on the poorer street. The first one, next to the vertical, corresponds to a frontage which is one-tenth as valuable as that on the better street; the second, a frontage two-tenths as valuable; the tenth line is used when both frontages are the same. The combination of the two frontages, *i. e.*, the point of intersection of the parallel line with the radiant, by its position with reference to the horizontal lines and the figures on the margin of the diagram, gives the value of the corner lot.



Suppose lot No. 3, fronting on A street in the middle of the block, is worth \$40,000, making the value per front foot \$800; and lot No. 4 on B street is worth \$20,000, a value per front foot of \$400; desired to know the value of lot No. 1 on the corner. Turn to

25000

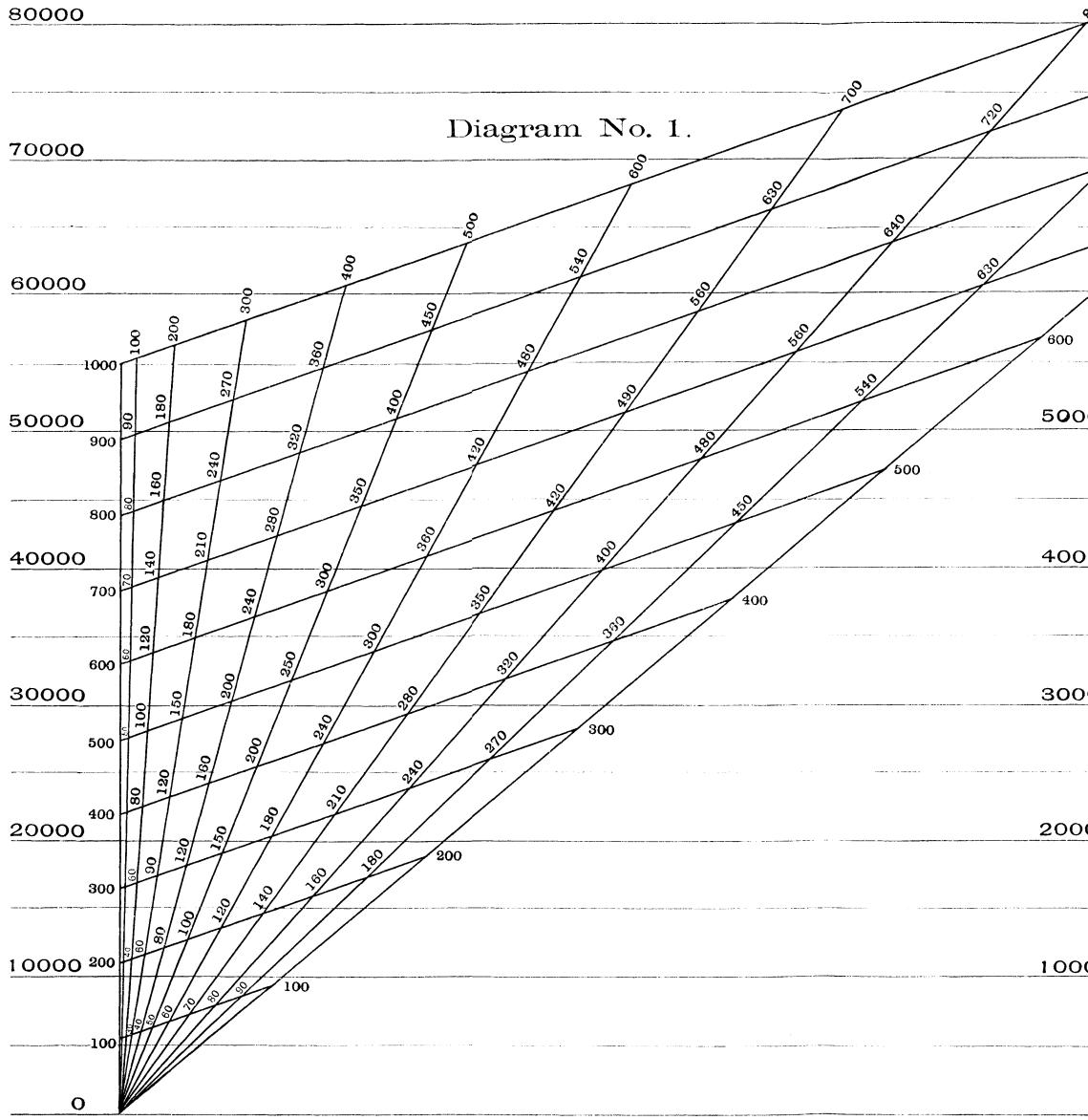
20000

Value of Lot 50 Ft. on Better Street

80000

70000

Diagram No. 1.

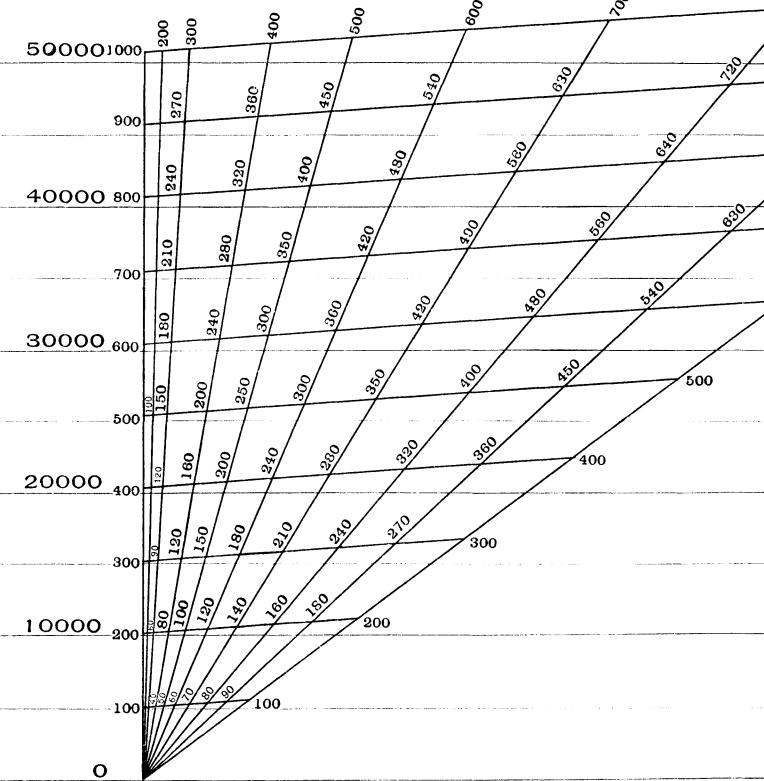


RETAIL DISTRICT

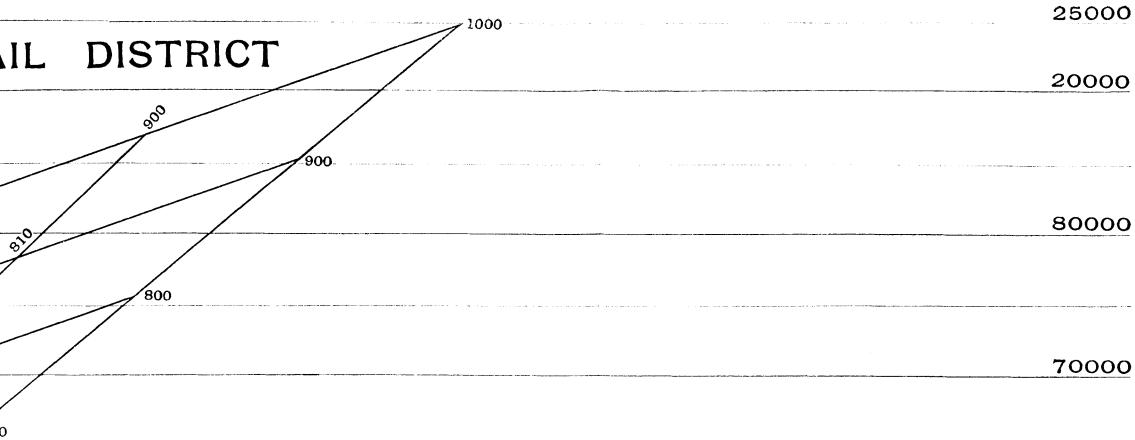
Lot 50 Ft. on Better Street

m No. 1.

Value of Second
Diagram No. 2.



AIL DISTRICT



Value of Second Lot

Diagram No. 2.

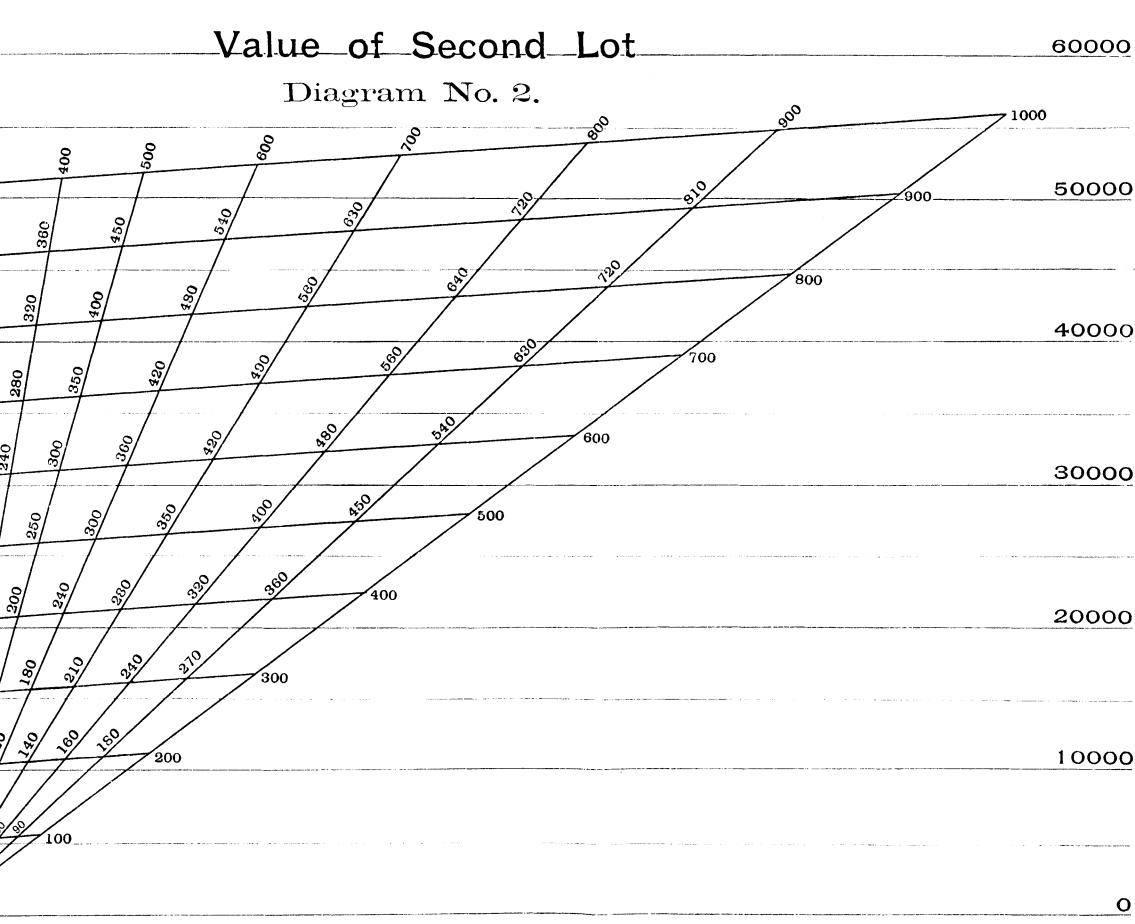


diagram No. 1; follow up the vertical line to 800; then from that point follow the line which extends to the right and upward till you come to 400; the horizontal line on which the latter number falls indicates by the figures on the margin that the value of the lot is \$51,000. In the same way lot No. 2 is found by diagram No. 2 to be worth \$41,500. Another pair of diagrams was provided for lots having the long frontage on the better street and the short one on the poorer, and still another for the wholesale district.

The committee of citizens, in affixing values to the middle lots, always assumed that they were 100 feet deep in business districts and 150 feet deep in residence districts. For lots of greater or less depth than these assumed units the following table was used to show the percentage of the value of the standard which should be taken.

Depth of lot in feet	Retail per cent.	Wholesale per cent.	Residence per cent.
10	35	--	--
20	44	--	--
30	54	--	--
40	63	32	15
50	70	55	30
60	78	63	40
70	85	75	50
80	90	85	58
90	95	93	65
100	100	100	72
110	104	111	79
120	107	116	85
130	110	121	90
140	113	125	95
150	115	128	100
160	117	130	104
170	119	132	109
180	120	133	113
190	121	134	117
200	122	135	120

With these diagrams and tables the computation of the values of all the parcels of land in the city, from the figures given

by the committee, involved only clerical work. When a lot was not rectangular or when the field notes showed modifying features not considered by the committee, such as uneven surface, or undesirable grade, the computation would be complicated, it is true, yet it could still be made accordingly to perfectly definite rules.

The valuations fixed by the committee of architects on the buildings and by the committee of citizens on the land were intended to be the commercial values. As property throughout the state is generally assessed at much less than its real value, it was necessary to reduce the valuations thus arrived at for St. Paul; otherwise this city would have been obliged to bear an undue proportion of the state taxes. The valuations were accordingly reduced one-half. This would seem like a bare-faced violation of the law, which requires that property be listed at its market value. But Mr. Somers maintains that these reduced valuations do correspond to market value in a real sense. While property may generally be held as high as the original valuations, it is nevertheless possible, he asserts, to buy lots and houses in any part of the city for prices as low as the reduced valuations, and even lower.

The assessment of 1896, thus completed, compared with that of 1894, stands as follows:

	1894	1896
Land - - -	\$83,544,660	\$54,973,150
Improvements - -	25,597,430	23,475,315

The reduction in the valuation of improvements was greater than these figures indicate, as it was estimated that new buildings had been erected since 1894 to the value 2.5 million dollars. The total cost of the assessment, both real and personal, was \$14,751. Mr. Somers estimates the cost of the personal property assessment at \$3500. This leaves a little over \$11,000 as the cost of the real estate assessment. These figures include the assessment for small portions of Ramsay county not included in the city of St. Paul.

The new assessment was received with universal satisfaction.

"It is an admirable work" was the verdict of the St. Paul *Globe*. "For the first time in its history," said the *Pioneer Press*, "St. Paul has had a satisfactory official appraisement of the values of real estate within its limits."

The county commissioners, acting as a board of equalization, had little to do. The only important change they made was to raise the valuation of a few whole blocks by a percentage. The State Board of Equalization accepted the St. Paul real estate assessment without change. Even the representatives from the rival city of Minneapolis offered no protest against the reduced valuations of St. Paul. They only regretted that their city had not been assessed in a similar way.

The great advantage secured by the St. Paul system lies in its reducing to a minimum the work of actually fixing values. Only extensive knowledge and the soundest judgment can fix a satisfactory ratio between the values of two parcels of land or two buildings. But to assess 100,000 parcels of land and 25,000 buildings requires so much drudgery that no city could afford to hire expert labor to do it. By reducing practically all of the field work and much of the office work to a system with perfectly definite rules to follow, it is made possible to have the drudgery done by unskilled labor. The delicate work of actually attaching values to property, thus reduced to a small amount, can be committed to experts.

In having the land valued by a large committee of prominent real estate men, an advantage was secured which Mr. Somers rightly considered of great importance. Assessed value, certainly of land and to a degree of all property, is nothing but an opinion: there is no such thing as a certain ascertainable market value of land. Hence a valuation for assessment, like legislation or judicial decisions, should come from a source which, by reason of its knowledge or its representative character, will be regarded by all as worthy of respect. The committee of citizens was such an authority; it included the best ability in the city and was representative as well. He would be rash, indeed, who would seriously differ from it. Of course it would

hardly be possible to get together such a committee for every assessment. Only an emergency will call forth such service. On the other hand it will be an easier task next time to fix the values of the middle lots, as the large map with the valuations of 1896 marked on it will serve as a starting point.

If the system should become permanent, the committee of citizens might give place to an elected or appointed board, which would mean a body of less capable men. Though more representative of population, it would be less representative of property. This would approximate the system to that already existing in some cities, *e. g.*, Boston, where an assessing board makes the valuations, aided by a corps of assistants who do the field work.

The use of diagrams indicates an undeveloped and perhaps temporary stage of the system. The more natural way would be to express the relation between the middle lots and the corner lots by means of tables similar to those used for computing interest. The universal principle assumed in the diagrams may be expressed as follows: Suppose a lot fronting fifty feet on a \$1000 street and 100 feet on a \$500 street is found by inductive study to be worth \$64,000. This sum is $\frac{64}{60}$ or 128 per cent. of the value of a lot in the middle of the block fronting only on the better street. This ratio of 1.28 may then be assumed to hold good for *any corner lot* of similar size and situation whenever the better frontage is worth twice as much per foot as the poorer. Taking other ratios of the frontage values and finding the corresponding values of the corner lots and second lots in terms of the middle lots, we get a table something like the following:

Ratio of poorer frontage to better	Ratio of corner lot to middle lot	Ratio of second lot
.1	1.11	
.2	1.14	1.02
.3	1.17	1.03
.4	1.22	1.03
.5	1.28	1.04
.6	1.36	1.05
.7	1.48	1.06
.8	1.60	1.08
.9	1.74	1.10
1.0	1.90	1.12

A computer could, of course, find the value of a lot quicker by the diagram than by a table, but it would be at the expense of accuracy. A diagram can only give approximate results; a table can be made to give results exact to a dollar.

There is one feature of the diagrams which a mathematician would promptly set down as an error. Suppose the value of the frontage on the poorer street is zero. The corner lot then, one would think, should be worth no more than a lot in the middle of the block with the frontage on the better street only. Yet according to diagram No. 1, such a lot fronting fifty feet on an \$800 street would be worth not \$40,000, but \$44,000. Mr. Somers replies to this criticism that an alley might be worthless to a lot which fronted on it and on no other public way, but yet might enhance the value of a lot with a good street frontage by affording better light and air. Acting on this view he has made all the parallel lines in diagram No. 1 have the vertical at points 10 per cent. above the values of the corresponding middle lots. Granting that the reply is well taken, does not this bring a confusing element into the diagram? Would it not be better to let the diagrams indicate the value of a corner lot only as it depends on the frontage per foot of two streets? This would leave the light and air given by an alley to be considered along with the grade of the lot and other features which have nothing to do with street frontage.

One possible source of error remains to be mentioned. It was found that wholesale and retail lots required different diagrams, due to the fact that the corner influence does not extend so far from the corner for retail lots as for wholesale. Are not these merely two types which shade into each other and embrace important differences within themselves? Thus, if the corner is devoted to petty retail trade, will not the increased value, due to the double frontage, be accumulated nearer to the corner than if it were a location given up to large retail trade. Here would be room for distinctions of the same sort as that between retail and wholesale lots.

In estimating the practicability for future use of the various

devices and plans described in the preceding pages, one consideration should not be overlooked. The success of the St. Paul assessment of 1896 was largely due to the excellent administrative ability of the man in charge. Under a less skillful hand than that of Mr. Somers, the elaborate machinery might show serious defects. To the older eastern cities where fluctuations in values are not great or rapid, where every parcel of land can in time receive expert attention, where long experience has developed efficient administrative methods, and especially where the blocks are not rectangular, the St. Paul system would possess few advantages. But to the newer western cities, where growth is rapid and irregular, changes in values extensive and rapid, and the administrative machinery crude—perhaps devised in early days for the rural districts—a method of assessment which can easily and cheaply apply expert opinion to an entire city, is greatly needed. Such a method, it seems to me, St. Paul has found.

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